
BULLETIN

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BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY

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Cover: This cobra of gold and semi-precious stones was owned and worn by King Senwosret II (1847–1837 BCE). Photograph from *Ancient Egypt*, D. P. Silverman, editor, 1997.

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Herpetological Images in Classical Egyptian Hieroglyphic Script
and in Pharaonic Head Ornamentation

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Abstract

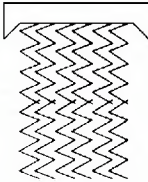
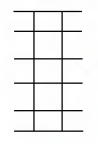
The role of herpetological images in ancient Egypt is explored by concentrating on hieroglyphic script and the head ornaments of pharaohs and their queens. Herps, especially snakes, are frequently seen in these domains, and we summarize some of the psychoanalytic interpretations that have been attached to these images. We add an idea of our own to this collection, suggesting that the pharaonic cobra (= uraeus = *Naje haje*) was a propaganda device that indicated not only pharaonic power but also that this god-on-earth had terrestrial concerns in common with all the other inhabitants of the Nile valley.

At first, hieroglyphs represented only concrete, visible objects, and the hieroglyphs were essentially abstract pictures of their referents (Mercer, 1993). Table 1 shows a variety of these word signs. In time, several developments occurred that complicated the interpretation of hieroglyphs, but which greatly increased the communicative ability of the medium. Some signs acquired the ability to represent abstract ideas. One such case began with the sign for wall (see Table 1), and by inclining the wall, the writer or stone carver could indicate a falling wall. The latter sign gradually came to mean the idea of falling and was used to represent this action regardless of what or who was doing the falling. In such a case the sign is called an ideogram. Other signs came to represent individual sounds and are called alphabetic signs. Still other signs came to represent syllables and are called phonograms. The word sign for snake is straightforward (Table 1), but this image is also the alphabetic sign for a hard d sound (d). The problem of knowing when the sign meant snake and when it meant d was solved by the use of a special metaspine, a simple upright stroke, |. Thus, the sign followed by | means snake, whereas the same sign without the metaspine means d. Table 2 presents a list of words containing d and their hieroglyphic equivalents, revealing that images of snakes were quite common and that modern travelers to Egypt can expect to see them frequently on ancient monuments as well as on other surfaces where hieroglyphics were written.

The sign for snake had synonyms. Table 3 presents several signs that were sometimes used in place of the more-or-less standard sign in Table 1. Closely related signs were those for “goddess,” and “evil being” (Table 3). Serpent signs could be compounded with other signs to produce still additional meanings, greatly increasing the frequency of snake images (see Table 3).

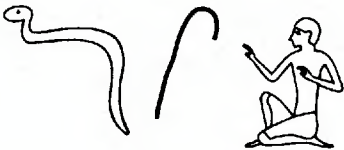
Snakes, however, were not the only herpetological images that appeared in classical Egyptian hieroglyphic script. Table 4 presents a list of other herpetological signs known to us, and it is clear that a variety of such signs exist, providing further support for the conclusion that herpetological images were quite common.

Table 1. Word signs: Pictures that represent their referents.

Sign	Meaning
	eagle
	sun
	water
	box
	mouth
	loaf
	snake
	rain
	wall
	falling wall

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Table 2.

“Sound”	Hieroglyphic	Meaning
‘ d 3		evil, violence
‘ d d		young man
w 3 d		green
d š • y		myself (masculine)
d š • y		myself (feminine)

Note: ‘ and 3 are weak consonants with sounds similar to o and a, respectively. There are no written vowels in Egyptian. Words are made pronounceable by inserting an e between the letters. Thus, we read the word d š • y as d e š e y.

Numerous scholars have offered psychological interpretations of ancient symbols, including herpetological ones in Egyptian script (e.g., Cirlot, 1962). While this literature is too vast to be summarized here, a few comments are in order. First, the connection between herpetological symbols and fecundity is rather obvious in the use of a tadpole as a sign for a large number. Second, the connection between water and fecundity is also implied by this same usage. Third, the use of crocodiles for “king” seems to be a straightforward application of the power of nature, especially that of the Nile, to a politically powerful person. The same may be said for the use of a cobra to symbolize the various powers of gods and goddesses, whether mythical or living.

One of the most interesting Egyptian symbols from the perspective of psychological interpretation is that associated with the protective goddesses of Egypt. They were Nekhebet, the vulture goddess of Elkab (upper Egypt), and Edjo, the cobra goddess of Buto (lower Egypt) (Table 3). Bringing the two images together in a single headdress or statue represented the unification of opposing forces, as did the simultaneous wearing of the white crown of upper Egypt and the red crown of lower Egypt. On the surface, this message was fundamentally political: The two formerly opposed parts of Egypt are now united under the rule of a single pharaoh. But numerous writers have spoken of several deeper, psychological messages that are basically similar to those said to arise from the joining of avian and ophidian elements in other cultures (Cirlot, 1962 and references therein). Initially, this compounding connects heaven and earth by virtue of connecting volant and terrestrial

creatures. This quest for metaphysical unification usually recognizes a tension between the two domains, since the heavenly aspect is typically associated with dominance, moral superiority, and masculinity, whereas the earthly aspect is associated with fecundity, femininity and related forces of procreation that must be controlled by the upperworld. Hence, the serpent or other terrestrial sign(s) must be countervailed by a suitable celestial sign, often a carnivorous bird. This was a conspicuous feature of images contained in pre-Columbian gold figures from Central America (Chiszar et al., 1998) and in the national emblem of Mexico, with its snake in the grip of an eagle (Chiszar and Smith, 1996). Now we see a fundamentally similar image in Pharaonic headwear, implying that the joining of avian and ophidian features has an archetypal quality (i.e., it is a part of the universal or collective human unconscious, to use the language of C. G. Jung).

The juxtaposed vulture and cobra constitute a familiar image, probably because of their presence on the famous gold mummy-mask of Tutankhamen, but there were many variations on the fundamental theme of avian-ophidian conflation in the costume and art of the ancient Egyptians (Figures 1–5). Yet, there were also many instances of cobra headware without an accompanying bird image, especially in the Old Kingdom. Could this mean that the ancient Egyptians only gradually evolved the avian-ophidian conflation, starting with the snake and adding the bird features later? The reality, however, appears to be that pharaohs were regarded as sun gods (eventually identified with Re and Horus, both represented by falcons), and this was true since the predynastic periods that preceded

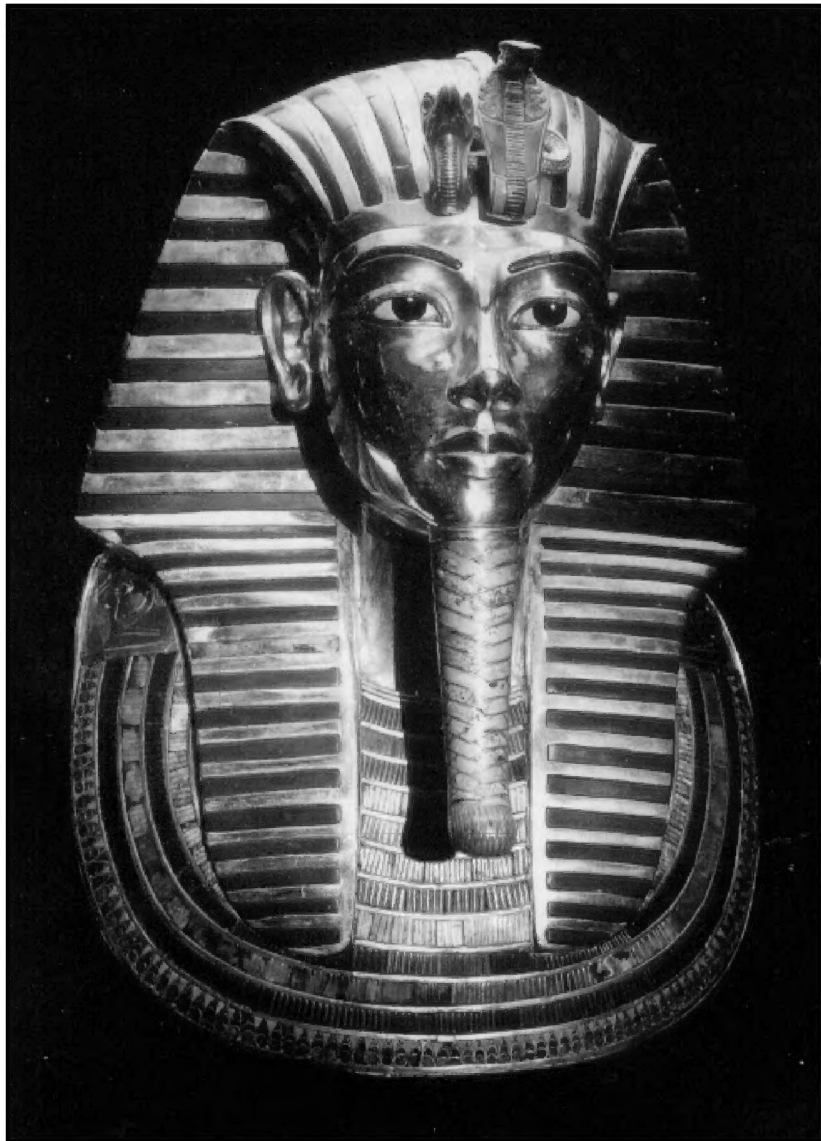


Figure 1. Funerary mask of King Tutankhamun (~ 1332–1322 BCE), discovered in 1922, is one of the widest-known artifacts of ancient Egypt. It contains Nekhebet, the vulture goddess of upper Egypt and Edjo, the cobra goddess of lower Egypt, symbols that had been part of the Pharaonic adornment since the Old Kingdom. From Silverman (1997, p. 34).

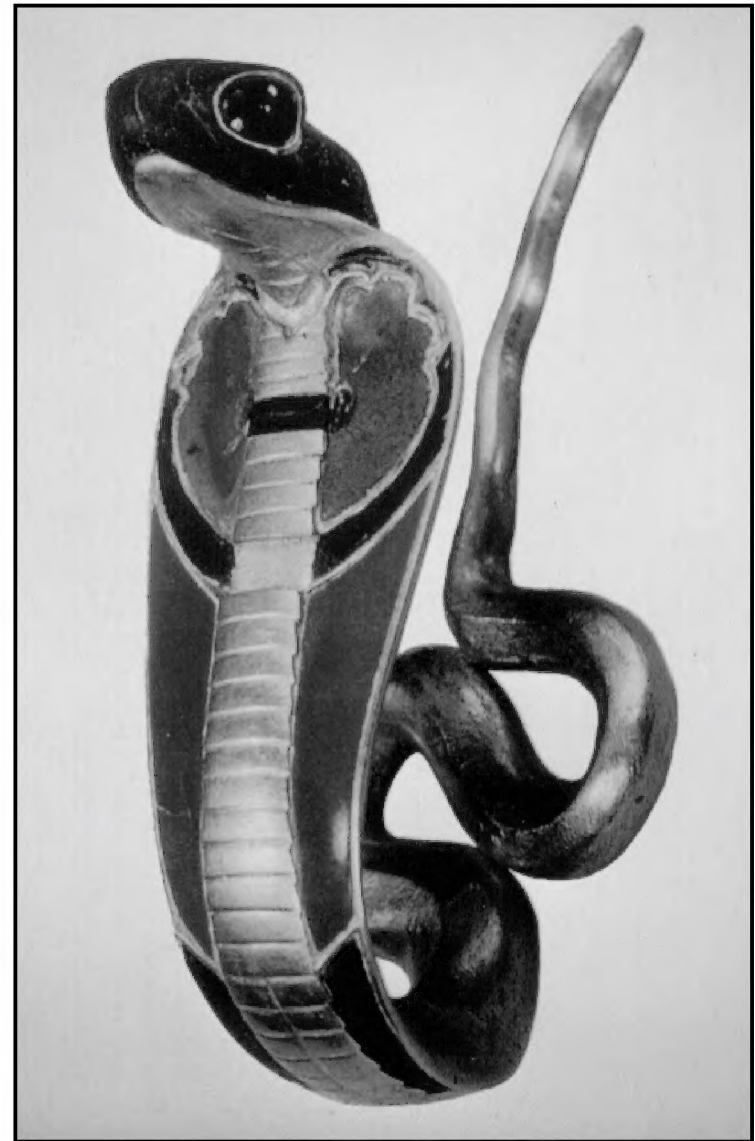


Figure 2. This cobra of gold and semi-precious stones was owned and worn by King Senwosret II (1847–1837 BCE). The cobra was assumed to be female, probably underscoring its connection with fertility. The term “uraeus” was used for an image of a female Egyptian cobra. From Silverman (1997, p. 29).

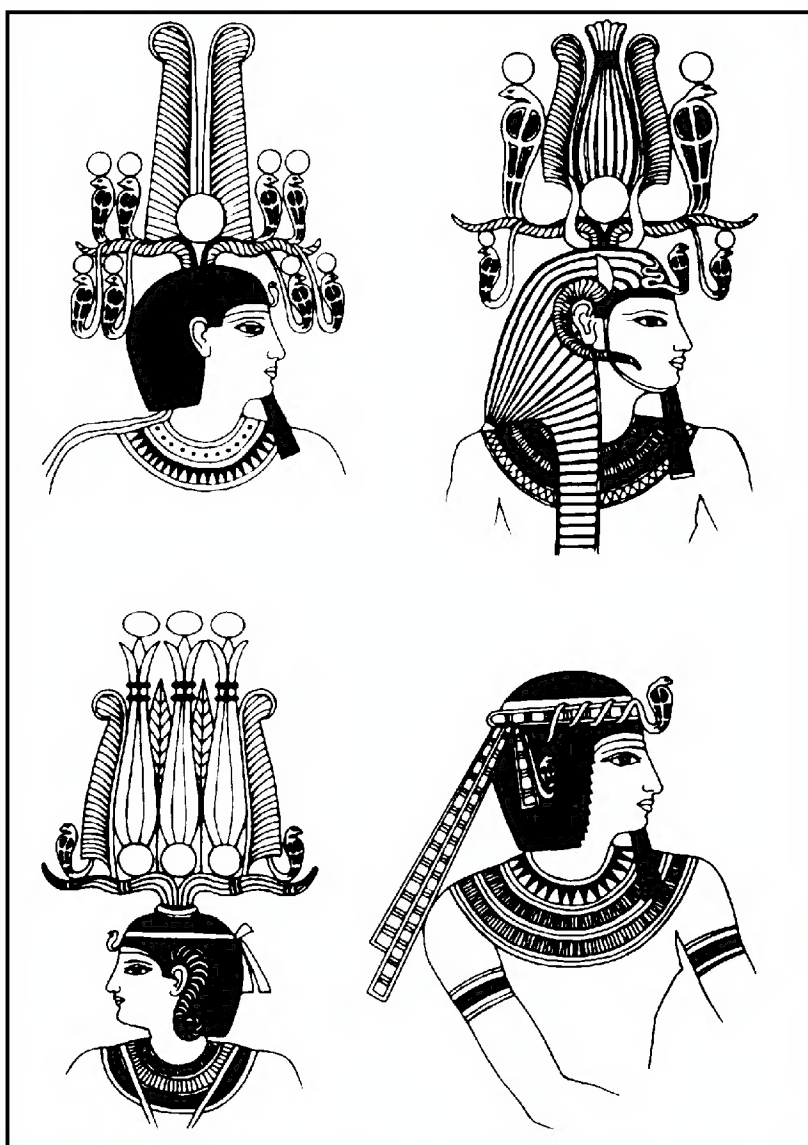


Figure 3. Four pieces of Egyptian headwear. Three show uraei and sun disks, combining terrestrial and celestial elements. The fourth shows only uraei; the sun disks and other celestial (bird-like) devices are absent. These items derive from the eighteenth dynasty (New Kingdom) through the ptolemaic period. From Houston (1954, p. 25).

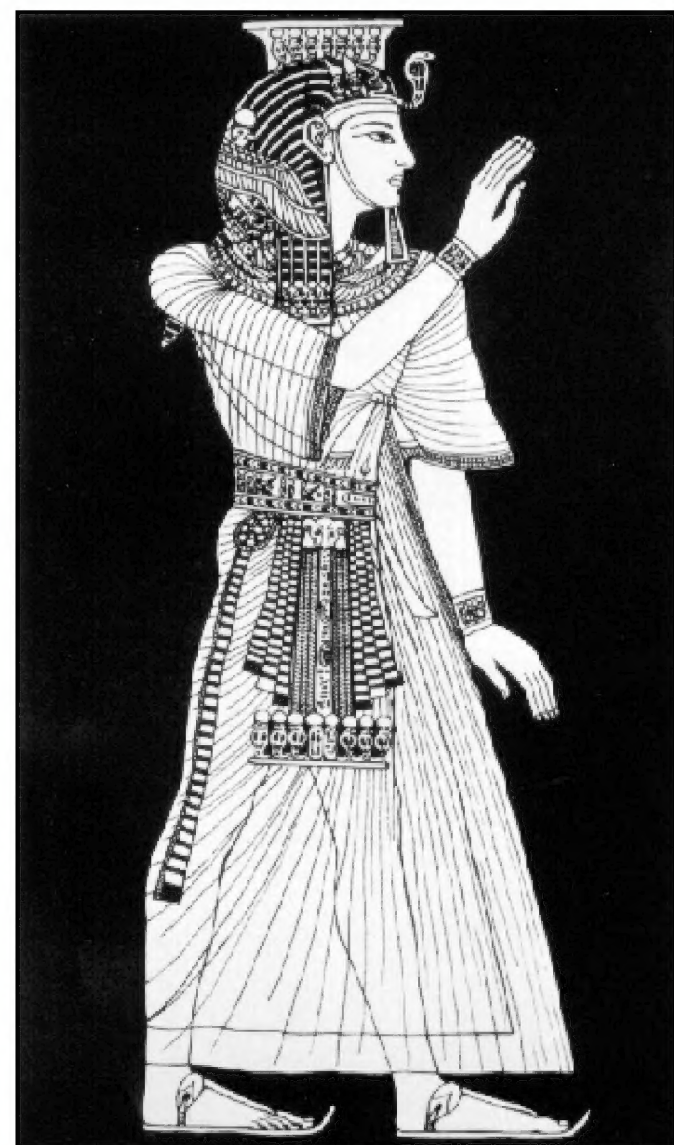
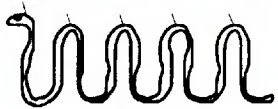


Figure 4. Many uraei on the headdress as well as the belt. Most uraei support a sun disk as does the falcon on the rear of the headdress. Ramses III (1187–1156 BCE). From Houston (1954, p. 30).

Table 3. Synonyms for snake and combined signs.

Sign	Meaning
	snake, goddess
	snake, goddess
	snake, worm
	evil being
	depth
	bright, white

the Old Kingdom. In other words, pharaohs or their images in stone or in paintings were seen by Egyptians not as terrestrial creatures but as distinctly celestial ones (Silverman, 1997). Hence, the cobra headdress on a pharaoh would have been viewed as a celestial-terrestrial composite by ancient Egyptians. The subsequent addition of various avian elements merely made explicit for foreigners a vision that was already obvious to the Egyptians. Any Greek, Roman, Syrian or other foreigner who did not properly comprehend the celestial nature of the pharaoh was aided by avian and solar devices seen in Figures 1–5.

A related point, but one not developed by previous writers, is that the addition of the cobra to the pharaoh’s image indicated that he had earthly concerns as well as heavenly ones. The cobra implied that the pharaoh was interested in the Nile’s seasonal inundation of the valley, with its effects on fecundity, growth, harvest, and abundance. These interests by a god-on-earth also carried the promise of divine intervention to ensure proper behavior by the Nile. Such interests and promises must have been reassuring to the common folk whose lives depended, as did the lives of cobras and all other residents of the valley, on the behavior of the river. Failure to inundate the valley or too great and prolonged an inundation were disasters

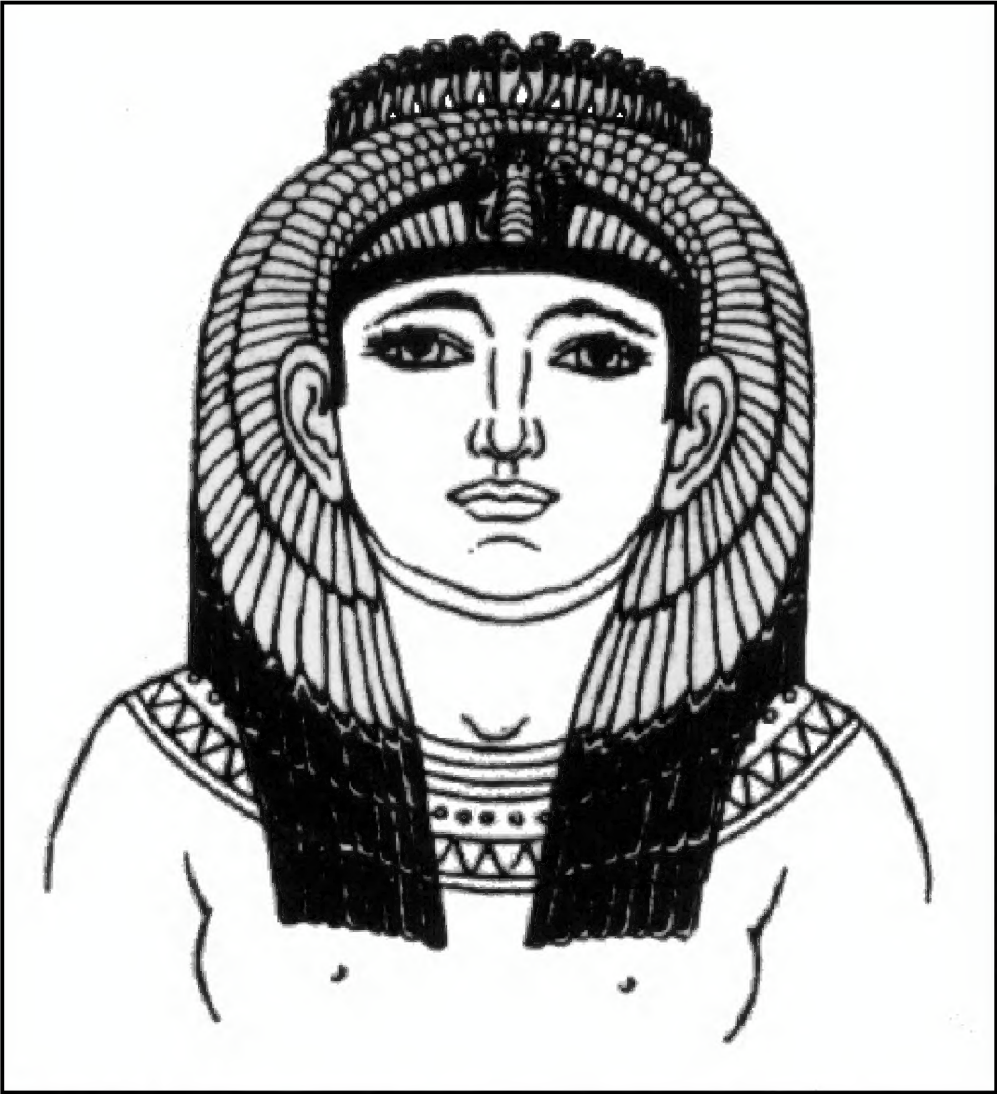


Figure 5. Drawn from the statue of Queen Amenerites in the Cairo Museum. This is the hawk headdress of Isis with a uraeus on either side of the head of the hawk and a lofty crown encircled by Uraei. From Houston (1954, p. 33).

that a god could obviate, particularly if that god was especially concerned with such terrestrial matters. So, the cobra could be seen as a propagandistic anchor, so to speak, that kept the pharaoh’s image attached to earthly matters, and hence to matters of vital significance for the vast segment of the population that labored to produce food. In return for the pharaoh’s benevolence, the citizens would be properly disposed to pay their taxes (a substantial portion of the harvest and livestock) and to provide labor during the off-season for the pharaoh’s funerary constructions. Just as pharaoh maintained ma ’at (divine order) in the heavenly realm by his participation in godly activities, he also maintained an earthy analogue of ma ’at by his intervention in events of vital importance to the people of the Nile. For their part, the people contributed to the maintenance of this all-important harmony through taxes and labor. Hence, it can be suggested that avian-ophidian imagery represented the balance of forces that defined ma ’at.

The pharaoh’s “image management” was handled by priests as well as political advisors, and the process of image management depended upon two factors. First, taking credit for the behavior of the Nile was good political theater as long as the Nile was behaving properly. Several years of drought, however, would call the pharaoh’s divine powers into question, leading to challenges of the core of the social structure. Second, Egyptian polytheism involved numerous gods, many of which were provincial (i.e., local) and some of which were regional or even national. Some gods had a priesthood that promoted their deity as well as themselves. Hence, these priests would resist social and political events that would run

counter to their interests. The religion of Egypt and the pharaoh’s status, therefore, depended upon the balance of these forces, and shifts in these forces led to shifts in the pharaoh’s image (Aldred, 1998).

In fact, the end of the Old Kingdom was associated with prolonged drought, de-deification of the pharaoh, and the eruption of provincial kings, gods and priests. The Middle Kingdom restored the prestige of the pharaoh, but now the image managers were careful to avoid overbold claims of pharaoh’s divine powers relative to control of the Nile, and emphasized instead his role as champion and protector of the people. By the New Kingdom, the pharaoh was fundamentally a military leader; his role in maintaining ma ’at was still important, but it centered on warfare and international relations rather than on internal ecological dynamics. He was still identified with various gods, and therefore still wearing avian and solar attributes, but their significance was connected with martial pursuits rather than with control over climatological phenomena. We propose that the meaning of the cobra also shifted from primarily connoting fertility and abundance to underscoring the pharaoh’s protective functions. Hence, while the avian-ophidian imagery remained a characteristic of Egyptian culture from the Old Kingdom until the demise of the New Kingdom, the religious and social meanings of the image expanded, contracted and shifted as a function of historical, social and military factors (Aldred, 1998; Steindorff & Steele, 1957).

Table 4. Other herpetological signs from hieroglyphic script.

Sign	Meaning
	many
	crocodile, fury, king
	frog, goddess (h k t)
	god (ś b k)
	tadpole, 100,000

References

Aldred, C. 1998. The Egyptians. London: Thames and Hudson Ltd.

Chiszar, D., J. Cox, M. J. Chamberlain, L. Cox and H. M. Smith. 1998. Faunal associations of a collection of pre-Columbian gold figures from Costa Rica. Bull. Chicago Herp. Soc. 33:25-30.

Chiszar, D. and H. M. Smith. 1996. Ophidian evolution in the numismatic history of Mexico. Bull. Chicago Herp. Soc. 31:220-221.

Cirlot, J. E. 1962. A dictionary of symbols. London: Routledge & Kegan Paul.

Houston, M. G. 1954. Ancient Egyptian, Mesopotamian and Persian costume. London: Adam & Charles Black.

Mercer, S. A. B. 1993. The handbook of Egyptian hieroglyphs: A study of the ancient language. New York: Hippocrene Books.

Silverman, D. P. 1997. The lord of the two lands. Pp. 106-113. In: D. P. Silverman, editor, Ancient Egypt. New York: Oxford University Press.

Steindorff, G., and K. C. Steele. 1997. When Egypt ruled the east. Chicago: University of Chicago Press.

Notes on a Nearly Successful Captive Breeding and the Parasite-related Death of a Narrow-headed Garter Snake, *Thamnophis rufipunctatus*

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One pair of narrow-headed garter snakes collected in Cottonwood, Arizona, was maintained in captivity for eight years. These snakes were adults at the time of capture, making them at least 10 or 11 years old at the time of this mating. Repeated attempts at breeding following hibernation periods of three months at temperatures ranging from 9.4 to 15°C (49–59°F) were met with repeated failure, in spite of successful copulation each year. On two occasions the female gave birth to one male and several slugs. These were later believed to have been parthenogenic events.

During the winter of 1998–1999, the pair was hibernated/brumated at 2.2–3.3°C (36–38°F) for six weeks, after a four-week period at 15°C (59°F). Water was available at all times during hibernation. The snakes were removed from this low temperature and allowed to warm up to a temperature of 22.2°C (72°F) over two days. They were then separated, housed in aquariums for several days while they acclimated to the increasing temperatures, and then offered food. They were placed together several times during this initial two-week period, and no copulation was observed although the male made several breeding attempts. Two weeks later, on 17 April 17, the pair was placed together again, at which time copulation occurred. The pair was left together several more days and mating may have occurred repeatedly during this time.

The female ate voraciously for the next several months, and began to demonstrate abdominal swelling. By July, her appetite had ceased but she continued to swell. By 4 July several areas of epidermal separation were noted. These were believed to be areas of dysecdysis in the pre-delivery shed, and a humidity box was placed in the aquarium. The female never left the heat source and maintained her body temperature at a constant 30°C (86°F). However, the areas of epidermal separation increased, and she died on 7 July.

A necropsy was performed. The snake weighed 319 g total, and her snout–vent length was 73.7 cm (29 in). Her total length was 94 cm (37 in). Examination of internal organs revealed no abnormalities of the liver, kidneys, heart or uterus. The lungs appeared hemorrhagic and somewhat edematous. The gut appeared thickened and with numerous nodules and fibrin tags. Histopathology revealed a large area of hemorrhage around the stomach and several sections of trematodes (flukes) in the blood vessels of the stomach.

The uterus contained 16 completely formed embryos, completely scaled and color patterned. There were no physical deformities. There were 8 males and 8 females, a sex ratio of 1:1. The babies, excluding membranes, weighed 34 g, with an

average weight of 2.1 g. The snout–vent length (SVL) of the males was 15.08 cm (5.94 in), and the total length was 19.05 cm (7.5 in). The average SVL of the females was 15.44 cm (6.08 in) and the average total length was 19.6 cm (7.72 in).

Based upon the breeding date of 17 April, and an expected gestation period of 90 days, the neonates were approximately 10 days prepartum at the time of death. The size of these neonates given 10 more days of growth would have correlated well with the size reported for neonates of this species collected in Arizona in late July and early August (19.2–25.4 cm SVL) (Rossman et al., 1996).

Even though successful breeding was not accomplished, these observations are significant. First, the low temperatures required to produce a normal litter in this species appear to be lower than for most other species. This might be expected from their cold water, high altitude habitat. Temperatures normally used to induce normal gamete formation and maturation in other species of colubrids would represent those experienced by this species on an average summer night. Indeed, this pair failed to successfully reproduce for eight successive years. Second, the cause of death appears to have been parasite related. Hemorrhagic septicemia secondary to trematode infestation of the stomach. Perhaps the circulatory compromise associated with late gestation contributed to bacterial overgrowth at sites of tissue damage near parasites. Interestingly, a fecal exam had been performed on this animal in early gestation, and both tapeworms and amoeba had been observed. This snake had been treated with 20 mg/kg of praziquantel (Droncit®) and 50 mg/kg of metronidazole (Flagenase®) orally on 21 May 1999 and 7 June 1999. Were either of these drugs responsible for the death of this snake nearly one month after the last dose? Had they been effective? Was the small size of the neonates and relatively low neonate weight compared to maternal body weight related to the parasites? This snake's maternal investment was 34–40 g, less than 15% of her body weight. Many other colubrids produce litters that represent over twice that maternal investment (i.e., a snake this size might produce a litter weighing 60 g or more).

Other members of this species have been diagnosed with trematodes (Rossi and Rossi, 1995). The observations presented here suggest that these parasites are not only capable of producing morbidity and mortality in their host, but also in the host's offspring. Even if the mother and neonates survived, the size and survivorship of the neonates might be affected. This provides further evidence for the importance of parasite control in captive animals.

Literature Cited

- Rossman, D., N. Ford and R. Seigel. 1996. The garter snakes: Evolution and ecology. Norman: Univ. of Oklahoma Press.
- Rossi, J., and R. Rossi. 1995. Snakes of the United States and Canada: Keeping them healthy in captivity. Volume 2: Western area. Malabar, FL: Krieger Publishing Co.

My C.H.S. Field Trip to the Louisville Zoo: Part 1 – Getting There is Half the Fun!

by Gary Fogel
C.H.S. Treasurer / Cub Reporter

It's Saturday morning, 4:45 A.M. The phone rings. Upon picking it up, I say, "I guess we're still going, huh?" The voice on the other end says, "I'll be there in 15 minutes." Click! So it begins—the race to the field trip bus. Lori King, who belonged to the voice on the other end of the phone, was on her way. Fortunately, I live only 10 minutes away from the scheduled bus pick-up point by car, maybe even less this early in the morning (or evening depending upon your frame of mind). If you've never gone on one of these outings, keep in mind that the bus leaves at these unearthly times because it takes a good 5½ hours to drive there. Up and back, that's a total of 11 hours, just on a bus! Of course it does have small video monitors mounted above the seats and a rest room that could only be described as a traveling port-a-potty on wheels; and what big wheels they are. The experience of using this device rivals some of the best video games around. There's nothing like trying to stand, aim and fire, so to speak, while bouncing down the interstate at 70 miles an hour. How exhilarating!

The task of choosing videos for this trip fell on 11-year-old John Kostka. Think of a young Orson Welles with dashes of Alfred Hitchcock and Roger Corman thrown in. When I heard of the videos selected a week prior to this trip, I did what any sane person would do. I went to Target and purchased a portable CD player! If I was going to have to sit through another viewing of *Anaconda*, I at least would be listening to a range of song stylings from the McGuire Sisters and Patsy Cline to the Rolling Stones. I do realize my musical tastes could drive a regular person to seek shock therapy. Thank goodness for headphones! At 6:15 A.M. we were all present and accounted for, as the bus pulled away from the confines of the curb, on its merry way to Louisville, Kentucky.

We sat in the back of the bus where there were numerous empty seats. This enabled us to have our own spacious seating without the fuss of dealing with a seatmate. At one point our membership secretary, Gino Martinez, stretched out across three back seats to take a nap. How he could do this, amidst the explosions, screams and noise of *Anaconda*, I do not know. The audio systems on buses are quite extraordinary. No matter how low you turn down the volume, it still seems to be too loud for the human ear! This was evident when trying to listen to CD's on headphones, while the movie's soundtrack blared through into one's ears. The hum of the bus engine, as it steamrolled along the highway, didn't help any. It was more entertaining watching Lori trying to listen to her classical CD's, hopelessly turning up her volume, louder and louder to no avail. The look on her face as she reached maximum sound control, but still couldn't hear Mozart, was priceless! If you



ever plan to bring a portable CD player on a bus trip, make sure you have soundproof headphones. It would also help if a low-key foreign Swedish film were playing on the video monitor.

I must add that before *Anaconda*, Mike Dloogatch popped his video into the player, which was of a 1978 excerpt from a broadcast of *A.M. Chicago*, taped a few months before a new-comer named Oprah Winfrey took over as hostess of the program. The video featured one of our founding members, Esther Lewis, and her reptilian menagerie, along with a young Mike Dloogatch with dark hair and bushy sideburns. His wingtipped collar shirt alone, was worth playing this highly entertaining, historical reference from the way-back machine.

One might think that after the *Anaconda* viewing we would rest our eyes (and ears) for a bit, but no! Our next video cinematic piece of trash was *The Waterboy*. It seems that Audrey Vanderlinden, who organized the trip and has a thing for Adam Sandler, snuck this gem into the video mix, much to Johnny Kostka's dismay. "I didn't bring it," John exclaimed. "Don't blame me!" I had not seen this movie previously (yippee!) and figured any film with Kathy Bates can't be all bad. I especially enjoyed the scene with the barbecued baby alligators on shish-ka-bob skewers. We did stop for lunch. Uneventful, except for the look of panic on behalf of the fast-food workers, as thirty-some people descended the bus and filled the ordering area. In a twinkling of an eye, or in little John Kostka's case, several egg McMuffins later, we were rolling again. Louisville was soon to be invaded by the Chicago Herpetological Society.

To be continued . . .

HerPET-POURRI

by Ellin Beltz

Sad but true

“A 7½-foot pet African python was blamed Monday for suffocating a 3-year-old boy in downstate Centralia. . . . [His] body was found . . . [on August 29] in the family’s home with compression marks around his chest and bite marks on his neck and ears. . . . His parents’ pet, which they obtained three months ago, escaped from an aquarium and wrapped itself around the boy’s chest while he lay sleeping with an aunt and uncle near the base of the aquarium.” [*Chicago Sun-Times*, August 31, 1999] Then “the parents of a 3-year-old boy squeezed to death by a pet python were charged Wednesday with endangering the life of a child and possession of a dangerous animal. . . . [The father] said he didn’t know the snake was vicious enough to kill his son, . . . who was asleep on the living room floor of the family’s mobile home. . . . [He said,] ‘I wouldn’t have had a snake in my house if I’d thought it was going to kill my son. That boy was everything in my world.’” [*Chicago Tribune*, September 2, 1999]

More loose snakes

- A small pet dog out for a walk one evening was found by his owner with a large snake wrapped around him in the corner of the family yard near Washington, D.C. The *Washington Post* pointed out that this “was not a normal occurrence in Montgomery County.” The dog’s owner screamed, then watched as her husband and son beat the snake off the dog. The dog was revived and taken to a veterinary hospital. The snake was described as either a boa constrictor or a Burmese python. It was beaten senseless by the family, then killed by a neighbor with a .22 rifle. [July 28, 1999, from Kathy Bricker]
- A 10-foot albino Burmese python slithered out a screen window in “its room” and escaped into the Pennsylvania night. A local snake breeder pointed out that the snake “was too small to pose much of a danger to humans.” [Reading, Pennsylvania, *Eagle/Times*, June 29, 1999, from Walt Loose]
- The same 10-foot snake was accused in absentia of “murdering a family pet in Oley Township [Pennsylvania].” A woman who lives next door to where the python escaped, found the chain that had been attached to her 3½-year-old Pomeranian, followed it and found her dog dead under a shed in her yard. She said, “Everybody around here is petrified. You’re talking a humongous snake. This isn’t a garter snake you can shoo-shoo. All around us are kids. All our neighbors have children, and they’re all small.” The snake’s owner claimed his pet had never taken anything even the size of a small rabbit in captivity. A herpetologist at the Philadelphia Zoo stated that if the snake were responsible, it would have swallowed the dog “chain or no chain.” [Reading, Pennsylvania, *Eagle/Times*, July 6, 1999, from Walt Loose]

Curator pleads guilty

“The longtime curator of reptiles at the San Diego Zoo admitted in federal court . . . that he embezzled more than \$70,000 from the sale of rare zoo animals. . . . [He] sold Aus-

tralian pythons . . . [that are] worth more than \$10,000 apiece and can’t be purchased through normal channels because they are a protected species in their native country according to Justice Department officials. . . . [The curator] pleaded guilty . . . to wire fraud and theft. . . . He apparently was caught by accident in a government sting called Operation Chameleon.” [San Diego, California, *Union-Tribune*, from Ralph Knepper] Bradford Norman sent in the Eureka, California, *Times-Standard*, which added that a zoo spokesman had declined comment other than to say that the curator had retired from the zoo where he had worked for 37 years. He had apparently been commingling personal and zoo funds at least since 1994. [both August 4, 1999]

Myth of the month club

Aeschylus, the Greek playwright, considered by many the “father of Greek tragedies,” died because an eagle dropped a tortoise on his head. The ancient Greeks had observed that eagles would pick up tortoises and terrapins and drop them on rocks to try to open the shells. Apparently, an eagle mistook Aeschylus’ bald head for a rock—and the rest (as they say) is history. [from J. N. Stuart]

Modern medalist into herps

The best U.S. pole vaulter also keeps reptiles. Jeff Harwig has pole vaulted 19 feet, ½ inch, which is about the same length as his largest python. He has 45 other pythons and boa constrictors, two monitor lizards, an iguana, some tortoises, and a very understanding wife. [*Chicago Tribune*, June 24, 1999, from Ray Boldt]

Commercial harvest prohibited

Just when you least expect it, along comes a surprising article. This month it is from Martha Ann Messinger, who writes, “Act 81 of the 1999 Session of the Louisiana Legislature prohibits the commercial harvest of Louisiana’s native box turtle populations. This law, which is effective August 15, 1999, was unanimously passed by both the Louisiana Senate and the House of Representatives. This is an outstanding victory for one of Louisiana’s turtles and will have far reaching impact on box turtles in other states. Any box turtles native to the state of Louisiana will be considered as originating from Louisiana. Therefore it will no longer be possible to smuggle box turtles out of other states where harvest is also illegal and claim they originated in Louisiana. Recreational possession is limit to four box turtles. Since January of 1995 a total of 29,896 box turtles were collected for the pet trade and shipped from Louisiana. This law will help to insure that future generations of Louisiana adults and children will be able to take a walk in the woods and view box turtles in their native habitat. [from Martha Ann Messinger <gpatton@bayou.com>]

Ozzie algae the culprit?

“The deaths of about 150 alligators in Lake Griffin [Florida] over the past two years could have been caused by a rare algae. The green and slimy *Cylindrospermopsis* looks like

harmless pond scum, but it can release deadly toxins, scientists say. The algae now covers almost all of Lake Griffin and has been found in three other Lake County lakes, a Seminole County lake and the St. Johns River. In the United States, the algae has previously been found in Kansas, Minnesota and Texas, but none of those cases involved dangerous toxins. Scientists don't know much about the algae but they fear it may be disrupting the lakes' environment. . . . Trying to get rid of the algae can produce horrific results. Officials in Queensland, Australia, tried to eliminate it from the Solomon Dam in 1979 with copper sulfate. The algae, as it died, released poison which caused gastrointestinal, liver and kidney damage in 150 people who drank the water. So far a growing number of birds around Lake Griffin have shown symptoms similar to those of the dying alligators: lethargic behavior, convulsions and then death. Scientists believe that if it's not the algae killing the alligators then it's a pesticide or an unknown virus. Lake Griffin has no public swimming beaches and fewer people are using it for water recreation because of deteriorating water quality." <<http://www.naplesnews.com/today/florida/d306423a.html>> [Naples, Florida, *Daily News*, July 23, 1999, from Wes von Papineau] Thanks also to Bill Burnett, who first brought the mystery of Lake Griffin to my attention years ago.

Meanwhile downstream . . .

The *Los Angeles Times* reports that an 8,000-square-mile dead zone exists in the Gulf of Mexico. This area, equal in size to the commonwealth of Massachusetts, has no marine life more than 30 feet from the surface. It is believed that annual nitrogen-enriched "fresh" water from the Mississippi River spring-melt floods leads to the growth of organisms that completely deplete oxygen in deeper waters by summer. Scientists suggest that preserving or restoring wetland buffer zones may reduce the amount of nitrogen reaching the Gulf. [GreenLines, August 10, 1999, from Roger Featherstone]

And on the other side of the sea

From David Blatchford in Scotland: "I came upon a cheering tale in the Daily Mail whilst lining a snake box; I get a lot of my information that way. It is a bit old and convoluted but nevertheless out of the ordinary. A re-possession order for a house that was surety against a loan was held up as the owner's daughter had a pet water dragon. The judge ordered a stay of execution so a new home could be found for the lizard. The humans were to be turfed out onto the street. Watch out for this one—it's in the post." [And it's still in the post . . .] David added a P.S. "There is another item. You may wish to alert your readers to a new book that might well be coming your way. Called 'Big Snake,' it is by Robert Twigger and is published in the UK by Golancz at £15.19. As I have no intention of contributing to Mr Twigger's income I can only comment on the content of the book from having watched a television programme, of the same name, that coincided with the appearance of this volume. Twigger learned of the long-standing reward offered by (I think) the Bronx Zoo for the capture of a 30-foot snake. The reward had initially been offered to debunk traveller's tales of snakes of fantastic size and not as an attempt to procure such an animal for the collec-

tion. Nevertheless Mr. Twigger took it at face value and with a complete ignorance of snakes, set off to capture such an animal. The programme culminated with the capture of a sizeable reticulated python which was hauled from its lair by the simple expedient of attaching a noose around its neck and pulling. To Mr. Twigger's obvious disappointment it failed the size test and was of no further interest to him; its teeth were smashed repeatedly with a machete and then it was butchered and eaten by Twigger and his team. One reviewer, Georgia Metcalfe of the *Daily Mail* (April 16, 1999), described it as a "fantastic book." I cannot believe that 'Big Snake' will appeal to members of the Society; I am simply informing you of its likely content such that you are not misled."

Websites of the month

- Check out the Show & Tell pictures on the CHS web site! <<http://www.chicagoherp.org>>
- The family Dendrobatidae is well known for elaborate parental care behaviors. Hugo Claessen has recently discovered a new addition to this repertoire in the rainforests of French Guyana—froglet transport in *Colostethus degranvillei*. For photos of this amazing discovery go to <<http://www.anura.org>>. [From J. N. Stuart, forwarded from Steven J. Waldron]
- On August 27, 1999, the BBC reported that "many of the world's turtle species, which have survived for millions of years, are now at risk of imminent extinction." Read the rest on the website or watch for news of a conference in Nevada to discuss turtle conservation. Some amazing points include: "Scientists frequently see turtles rarely spotted in the wild on sale in markets and restaurants. They think several Chinese species discovered within the last two decades may already be extinct. . . . China imports large numbers of turtles from Vietnam, Bangladesh and Indonesia. And the USA, where many species have little or no protection, exports more than seven million turtles annually, as pets or for food." <http://news.bbc.co.uk/hi/english/sci/tech/newsid_431000/431580.stm> [from Eloise Beltz-Decker]
- Drop in on "Project Exploration" at <<http://dinosaur.uchicago.edu>>. And visit "Dinosaur Discovery" online <<http://www.chicildrensmuseum.org>>. [from Gabrielle Lyon]
- Read the latest on UV-B exposure and its controversial possible link to amphibian declines in the United Nations Environment Programme "Ozone Depletion Report." Choose between <<http://www.gcric.org/ozone/toc.html>> for PDF format or <<http://www.gcric.org/UNEP1998/>> for HTML. [Froglog, June 1999, from John Wilkinson <daptf@open.ac.uk>]

Story updates

- J. N. Stuart writes: "Re: The theft of about 30 box turtles from a Northeast Heights Albuquerque backyard (in your August column), all has ended well. . . . The Albuquerque, New Mexico, *Journal*, June 25, 1999, [reports] 'As mysteriously as they disappeared, Thomas Beck's missing turtles have returned. Beck, who reported earlier this month missing some

30 turtles from the herd he keeps in his Northeast Heights backyard, said they returned while he was away on a business trip. He suspects a neighborhood prank. "They seem none for the worse—My 'A' turtle and my 'C' turtle, Big Red—all my favorites are back," he said. He said he received numerous calls from concerned turtle lovers and has been given several new ones. "I'm definitely at capacity," he said. A photo with this text shows him with six *Terrapene ornata* which look like subspecies *luteola*."

- This is the 33rd year of human effort to save the Kemp's ridley sea turtle. Program workers hope to continue efforts until the species can be considered recovered. [USA Today, July 20, 1999, from Bill Burnett]
- Congratulations to Chris Phillips, Illinois' state herpetologist, on the publication of his "Field Guide to Amphibians and Reptiles of Illinois." You can call (217) 333-6880 or E-mail <cwarwick@mail.inhs.uiuc.edu> to get a copy.
- "The Amphibious Order of Frogs . . . assembled, as they have yearly since 1934, to devour upward of 6,400 frog legs, along with copious amounts of chicken [and other stuff]." While the organization started on local frogs, now they're forced to import frog legs from China and the Philippines. [Philadelphia Inquirer, August 6, 1999, from Mark Witwer]

Next he's doing hare

A field east of Lawrence has been trimmed to create "Turtle Island Maze" by a Kansas crop artist. The 5-acre artwork is in honor of the Kansas state reptile, the box turtle, and is open to the public to explore as a labyrinth attraction. [Orlando, Florida, The Sentinel, July 14, 1999, from Bill Burnett]

Herp household hint

For those plagued by loose fruit flies, place two tablespoons of apple cider vinegar and one tiny drop of dish soap in a salt shaker and screw down the perforated top. Place in the area of greatest infestation and watch all the loose fruit flies jump in and die. If you don't want to kill the flies, you can put fruit fly medium (from the biological supply houses) in open tubes, let a bunch of wild flies assemble in the tube. Then cover the top with your hand really fast and push in a foam plug. Two days later, release outside and keep the tube at room temperature. Eight days after the tube was started, put the whole tube in with the critters and when the new fruit flies hatch out (at 10 days total) your amphibians/reptiles can self feed ad libitum. I have both tubes and death pits when I have flies. I figure they get a choice—and my toads get their offspring. :)

Salamander suits—past, present and to come

The Southern Oregon Forest Coalition obtained internal memos of the Bureau of Land Management which indicated that some central salamander habitat would be logged even though up to 300 acres of the area has never been surveyed. The BLM manages about 800,000 acres of public land in southern Oregon, alone. [Econews, June 1999] The next month, the same journal reports that an Ashland, Oregon, group has sued to stop the BLM from further logging in the Siskiyou Mountain salamander habitat. The issue is the 1997

Middle Thompson lumber sale which could clear cut nearly 100 acres of salamander habitat to create a "fuel break." Finally in August, Econews reported that the twice appealed "Twice Helicopter" timber sale on the Salmon River has been suspended by the Klamath National Forest. The group won the appeal because no surveys had been done by the Forest Service in two timber sale units. Meanwhile, the August 6 Times-Standard reports that "The Ninth District Court in Seattle, Washington, ruled that the U.S. Forest Service and Bureau of Land Management cannot proceed with [timber] sales before completing surveys for more than 77 rare species believed to depend on old-growth forests. The ruling affects about one-fifth of the federal timber that was slated to be cut this year west of the Cascades. The species involved are a mouse, five salamanders, and 71 plants, insects and mollusks." Follow it in live time at <www.times-standard.com>. [All from Bradford Norman]

Thanks to everyone who contributed this month and to Lori King-Nava, Marcia Rybak, Bill Burnett, Tom Taylor, Rob Lovich, Mark Witwer, Walt Loose and Kim Smith for articles, pictures and ideas. Thanks also to Harold Dundee, George Pisani and Bob Aldrich for the 1999 Directory of Herpetologists. You can contribute to my upcoming 138th C.H.S. column. Just find articles about reptiles and amphibians. Take the whole page out of the paper or magazine. Be sure the date/publication slug stays attached to each page or write it on. Then put your name on it and send to: Ellin Beltz, 1647 N. Clybourn Avenue, Chicago, IL 60614-5507. I'm looking forward to hearing from you!



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RATS AND MICE

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Herpetology 1999

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

SNAKE SKULL EVOLUTION

M. S. Y. Lee et al. [1999, Nature 400:655-659] note that snakes are renowned for their ability to engulf extremely large prey, and their highly flexible skulls and extremely wide gape are among the most striking adaptations found in vertebrates. However, the evolutionary transition from the relatively inflexible lizard skull to the highly mobile snake skull remains poorly understood, as they appear to be fundamentally different and no obvious intermediate stages have been identified. The authors present evidence that mosasaurs—large, extinct marine lizards related to snakes—represent a crucial intermediate stage. Mosasaurs, uniquely among lizards, possessed long, snakelike palatal teeth for holding prey. Also, although they retained the rigid upper jaws typical of lizards, they possessed highly flexible lower jaws that were not only morphologically similar to those of snakes, but also functionally similar. The highly flexible lower jaw is thus inferred to have evolved before the highly flexible upper jaw—in the macrophagous common ancestor of mosasaurs and snakes—for accommodating large prey. The mobile upper jaw evolved later—in snakes—for dragging prey into the esophagus. Snakes also have more rigid braincases than lizards, and the partially fused meso- and metakinetik joints of mosasaurs are transitional between the loose joints of lizards and the rigid joints of snakes. Thus, intermediate morphologies in snake skull evolution should perhaps be sought not in small burrowing lizards, as commonly assumed, but in large marine forms.

REPRODUCTIVE TIMING IN FEMALE COMMON CHAMELEONS

M. Cuadrado and J. Loman [1999, J. Herpetology 33(1):6-11] studied reproductive timing in relation to the size and age of individual female common chameleons (*Chamaeleo chamaeleon*) in a population in southern Spain. Thirty-one radio-tagged females were observed during two summers, 1993 and 1995. The mating season (courting, pair formation and copulation) lasted from late July to mid-September. Egg-laying was recorded from 25 September to 28 October, 34–40 d after copulation. Timing of reproduction varied between individual females, old and large females timing the reproductive events (i.e., mating and egg-laying) earlier than young and small ones. Specifically, timing was affected by size when age was controlled for but not the reverse. Four alternative explanations for delayed breeding of younger and smaller female chameleons are discussed: (1) late breeding could be a consequence of physiological constraints in the onset of maturation of younger females; (2) late breeding allows young females to secure more resources for reproduction thus achieving larger clutches; (3) young females avoid competition for attractive males from large females, and (4) if young females are less preferred, they may not be courted until males no longer are courting larger females. This happens when the latter become pregnant.

INTERACTIONS BETWEEN MOLE SALAMANDERS AND SIRENS

J. E. Fauth [1999, Amphibia-Reptilia 20(2):119-132] used field sampling and experiments in natural and artificial ponds to study interactions between branchiate adult mole salamanders (*Ambystoma talpoideum*) and lesser sirens (*Siren intermedia*), two top predators in temporary ponds of the southeastern U.S. The abundance and distribution of these two salamanders were independent among ponds, with *A. talpoideum* more numerous and widespread than *S. intermedia*. Both species were more likely to be found in ponds near other intermittent wetlands. Within a pond, captures of these two species were negatively correlated, and a field experiment showed that paedomorphic *A. talpoideum* avoided traps containing *S. intermedia*. An experiment in artificial ponds confirmed that interactions between these two species were highly asymmetrical; *S. intermedia* reduced the growth and recruitment of *A. talpoideum* without experiencing reciprocal positive or negative effects. These results suggest that *S. intermedia* competes with and is an intraguild predator of *A. talpoideum*, limiting its growth and controlling its recruitment.

FOOD HABITS OF THE GLOSSY SNAKE

J. A. Rodríguez-Robles et al. [1999, J. Herpetology 33(1):87-92] studied the diet of the glossy snake, *Arizona elegans*, by examining stomach contents of more than 700 museum specimens, and supplemented their findings with published dietary records. Fifty percent of 107 prey were lizards and 44% were mammals; birds and snakes composed the remaining prey. Most lizard prey were diurnal, and presumably were captured when they were inactive by nocturnally wide-foraging glossy snakes. Conversely, most rodent prey were nocturnal heteromyids that the authors suspect were ambushed by *A. elegans*, thus raising the possibility that these snakes use alternative hunting tactics on different prey types. Ninety-five percent of the specimens with food contained a single item, and all 49 prey for which the authors determined direction of ingestion were swallowed head-first. Although smaller *A. elegans* consumed mammals occasionally, specimens that ate mammals were significantly larger than those that fed on lizards, and glossy snakes that took birds were larger than those that ate mammals. Larger glossy snakes ate larger prey and added birds to their diet, but they continued to eat lizards and mammals, which suggests that there is no absolute ontogenetic change in the diet of *A. elegans*. For any given body size, *A. elegans* has a longer head, and thus a larger gape than the sympatric long-nosed snake, *Rhinocheilus lecontei*. This difference in relative head length may explain why smaller *A. elegans* are capable of predation on mammals, whereas smaller *R. lecontei* feed almost exclusively on lizards, and may also account in part for the higher frequency of stout-bodied phrynosomatid lizards and of mammals in the diet of glossy snakes.

JUSTIFICATION FOR LISTING THE HAWKSBILL AS CRITICALLY ENDANGERED

A. B. Meylan and M. Donnelly [1999, *Chelonian Cons. and Biol.* 3(2):200-224] maintain that the hawkshill turtle (*Eretmochelys imbricata*) meets the 1996 IUCN *Red List* criteria for a Critically Endangered species, based on global population declines of 80% or more during the last three generations (105 years) and projected declines over the next three generations. Most populations are declining, depleted, or remnants of larger aggregations. Only five regional populations remain with more than 1000 females nesting annually (Seychelles, Mexico, Indonesia, and two in Australia). Hawksbills were previously abundant, as evidenced by high-density nesting at a few remaining sites and by trade statistics. Of all the species of marine turtles, the hawksbill has endured the longest and most sustained history of exploitation. In addition to all the threats shared with other marine turtles, hawksbills are exploited for tortoiseshell—long considered a precious material. While the species is not expected to become extinct in the foreseeable future, individual populations from around the world will continue to disappear under the current regime of exploitation, loss of habitat, and other threats. Hawksbills are closely associated with coral reefs, one of the most endangered of all marine ecosystem types. The Convention on International Trade in Endangered Species (CITES), with good enforcement, is an effective tool to implement hawksbill conservation. For this species, more than any other marine turtle species, international trade remains the most serious threat.

CONSEQUENCES OF PREY ENVENOMING

D. Chiszar et al. [1999, *Copeia* (3):640-648] note that snake venoms have multiple consequences on prey, ranging from immobilizing and digestive effects to enhancing the salience of envenomated prey and their chemical trails. Although the toxic and lytic effects are reasonably well understood, the chemosensory effects have been little studied. Experiment 1 showed that western diamondback rattlesnakes (*Crotalus atrox*) preferred envenomated (E) over nonenvenomated (NE) prey in a standardized choice situation, as other species have done in previous studies. In Experiment 2, E prey were prepared by injecting reconstituted lyophilized venom, so that dosage could be controlled, something not possible when snakes envenomated prey as in Experiment 1 and in most previous studies of rattlesnake response to E and NE prey. Prey injected with 10 mg of lyophilized venom were reliably discriminated from NE prey by *C. atrox*. A dose-response curve was established in Experiment 3 to assess the lowest dose to produce E prey that were preferred over NE prey. Two statistical techniques were used to estimate minimum perceptible dose (MPD), giving values of 6.0 and 7.1 mg, respectively. These values were compared with the amount of venom snakes actually injected during predatory strikes and with various measures of lethality. Chemosensory effects of venom probably facilitate rattlesnake predatory behavior in that adult rodents are usually released after envenomation, requiring that the snake follow the prey's trail to recover the carcass. This trail-following task depends upon the snake's ability to discriminate trails of E prey from those deposited in the vicinity by other (NE) rodents.

EFFECTS OF ENVIRONMENTAL CONDITIONS ON PLATEAU LIZARD REPRODUCTION

A. J. Abell [1999, *J. Herpetology* 33(2):173-180] notes that fitness of female reptiles often depends on both the number and size of offspring. The author examined clutch size (number of fertile eggs) and offspring size relative to maternal body size in the striped plateau lizard, *Sceloporus virgatus*, under conditions of natural and experimental variation in water and food availability. Under all environmental conditions, larger females produced more offspring. In the year with higher levels of precipitation, path analysis indicated a direct positive effect of maternal size on offspring size and a significant trade-off between offspring size and number. Similar nonsignificant trends were found in a year of severe drought. During the drought, females of *S. virgatus* produced relatively small clutches of large offspring. Food supplementation during the period preceding and including ovulation removed the effect of drought on clutch size and offspring size. Food-supplemented females produced relatively large clutches of small offspring.

WEST INDIAN HAWKSBILL DEMOGRAPHY

J. I. Richardson et al. [1999, *Chelonian Cons. and Biol.* 3(2):244-250] note that adult female hawksbill turtles, *Eretmochelys imbricata*, return periodically and with surprising predictability to nest on a single beach in Antigua, West Indies. This consistent behavior has provided a window of opportunity for measuring several elusive parameters such as survival and recruitment, essential for population modeling. A total of 126 females have been identified after 11 seasons of saturation tagging surveys (1987-97). Seasonal nesting cohorts ranged from 22 to 38 individuals. The mean remigration interval for an individual was 2.69 years. The total number of reproductively active females in the population was estimated to be 78 animals, out of which 29 animals (37%) remigrated to nest each season on average. The appearance of 6.9 (range 4-11) new animals each season was considered to be recruitment, representing approximately 9% of the estimated adult female population. The permanent disappearance of 4.8 individuals per year was taken as a best estimate of mortality, representing approximately 6% of the adult female population. An average female laid 5 clutches of 155 eggs per clutch during a nesting season, depositing 775 eggs with roughly 75% emergence success. This equates to an average production of 288 eggs/female per year. Mean survival of adult females was estimated to be 8.1 years of reproductive activity, during which an average female produced 3100 eggs during 4.1 nesting seasons. Recruitment predicted from estimates of fecundity was 5.4 new animals per season, close to the 6.9 new animals observed per season. With a reproductive rate of 288 eggs/year, an adult female must be allowed to reproduce for at least 9 years (4.1 nesting seasons/individual) to replace herself, and some animals must continue to be reproductively active for several decades or more to balance the early mortality of other individuals. The hawksbill's Critically Endangered status is logically the result of adult females not being provided the long term protection they evidently need to maintain population numbers.

The Tympanum

Utila's Black Iguana Blues

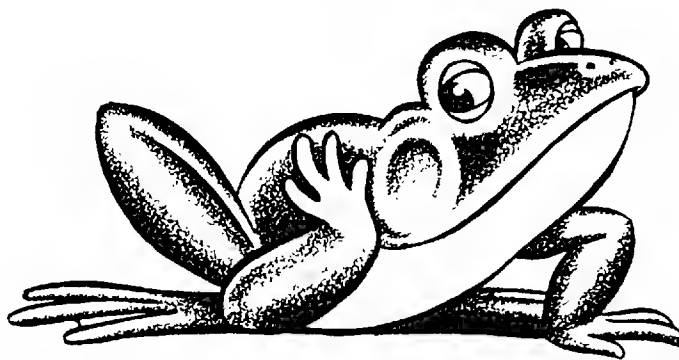
Last month when I attended the International Herpetological Symposium in San Diego, I had the pleasure of meeting Dr. Gunther Kohler from the Senckenberg Natural History Museum in Frankfurt, Germany. I have followed Dr. Kohler's work with the black spiny-tailed iguana, *Ctenosaura bakeri*, for several years through the International Iguana Society's publication, *Iguana Times*. *C. bakeri* is known only from Utila Island in the Caribbean Sea off the coast of Honduras. This species was thought to be extinct until its rediscovery in 1994. This was partly due to the fact that almost all of the species in the genus *Ctenosaura* are saxicolous lizards, but *C. bakeri*'s distribution on Utila is limited to the mangrove swamps. Upon the rediscovery, the Senckenberg Nature Research Society and the Frankfurt Zoological Society implemented the "Conservation Project of the Utila Iguana, Honduras." A breeding and research station was built which allows for continuous work on the project. Scientists, conservationists and volunteers have done a wonderful job not only breeding and releasing these highly endangered lizards, but more importantly, educating the residents of Utila about their unique iguana. Under Gunther's direction, the program has been highly successful.

At the Symposium, we all sat in the darkened room anticipating a fascinating slide presentation about *C. bakeri*. Gunther began by telling us that only hours prior to his talk, he received a message from his team on Utila Island. The owner of Utila Lodge was illegally slashing, burning and draining the mangroves. Gunther urged us to help stop the destruction by writing protest letters to the proper parties on Utila. Needless to say, Gunther had the right audience, and numerous individuals approached him for additional information. Within days, the CHS posted his "call for letters of protest" on our website. At our next board meeting, I was given permission to send such a letter on behalf of the Chicago Herpetological Society.

I encourage our individual members to write letters as well. This is an opportunity to help with the conservation of a spectacular iguanid. What a shame it would be to sit by while events are taking place that could expedite the demise of this species. Following is a sample letter which may serve as a guideline. Please note that the approach is one of education, not harsh words. The letters do not need to be formal; notes can be sent expressing concern.

Correspondence should be sent to the mayor of Utila: Mr. Monterrey Cardenas, Mayor Municipalidad, Isla de Utila, Islas de la Bahia, Honduras, C.A. Copies should be sent to: Mr. Jim Engel, Utila Lodge, Isla de Utila, Honduras, C.A., and to: COHDEFOR, Dpto. Areas Protegidas y Vida Silvestre, lug. Angel Barahona, Apdo. Postal 1378, Tegucigalpa, Honduras, C.A.

I have been in touch with Dr. Kohler for several weeks, and he is keeping me posted with the progress of the attempt to halt



the mangrove destruction. If you would like to learn more about the Utila Iguana project, you can call me at (773) 477-3645, or access the information on the Internet through the website of the Senckenberg Natural History Museum <http://senckenberg.uni-frankfurt.de/fis/herp_ut.htm> or

through the CHS website <www.chicagoherp.org> under "Herp Headlines."

All efforts are greatly appreciated.

Lori King

*** sample letter ***

RE: Destruction of mangrove forests by Utila Lodge

Dear Mayor Cardenas:

It is with great concern that we are compelled to write to you. Recently, we have learned of the destruction of the mangrove forests of Utila Island. This is unfortunate because the mangrove forests harbor a great many levels of life in the ecosystem. Once such important flora and fauna are destroyed, the negative effect throughout your island will be widespread. Often such destruction is permanent—the ecosystem may never fully recover.

This may have a profound effect in several ways for the inhabitants of Utila. It is our understanding that scuba diving, snorkeling, and deep sea diving are among your most popular tourist attractions. Many important fish species inhabit the mangroves or require them for breeding habitat. Destroying their habitat will eliminate these fish and the reason for divers to visit Utila. The program, "Investigation and Conservation of the Utila Black Iguana" through the Frankfurt Zoological Society and the Senckenberg Natural History Museum is becoming quite well-known. The conservation efforts of this group of scientists on behalf of this endangered iguana species are being applauded worldwide. People are becoming increasingly aware that your spectacular iguana exists nowhere else in the world except in the mangroves on beautiful Isla de Utila. This type of environmental program is excellent in generating international interest in the unique qualities of Utila.

We urge you to make every effort to stop the destruction of Utila Island's mangrove forests immediately. Having the foresight to protect what is unique to your island will insure the future of Utila and its residents for generations to come.

Sincerely,

Dear Editor:

I found Dean Ripa's essay, "Keys to Understanding the Bushmasters" (CHS *Bulletin*, Vol. 34, No. 3), very informative and it's obvious he has poured his heart into it. However, I am compelled to respond to some points he has made about the captive husbandry of these animals.

In acclimating new specimens, it is easier to collect a fecal sample (for examination of parasites, etc.) from a paper substrate, rather than from an enclosure that has previously housed a bushmaster. Ripa's reasoning is that the animals will acclimate better because of scent cues left by the former occupant. I have found this not to matter. In fact, just the opposite. Newly acquired animals, placed in a cage that formerly housed bushmasters, wouldn't go into the hide-boxes that were previously occupied; they also wouldn't coil in the same site as the previous animals. They would go into a hide-box that was new. A hide-box is critical in maintaining bushmasters, either wild-caught or captive-born. The color of the hide doesn't make a difference. He maintains that white PVC pipe is not effective. Again, not the case. My animals use it, and the Dallas Zoo, which started the Bushmaster Breeding Program in 1989, uses it to this day. They have produced, I believe, 87 offspring of the South American species, (*Lachesis muta muta*).

I would like to address his statement that bushmasters almost exclusively strike-hold. Again, not the case. The animals I house, (of two species) will strike-hold, strike-release, or I can place a rodent at the entrance of their hide-box, and they will slowly crawl up to the prey, and begin eating. I have found the *L. m. muta* to accept rodents in this fashion, rather than striking. They will also accept "cold" dead prey, at room temperature (78 degrees). So his statement that a feeding episode rarely occurs in the absence of an initial strike sequence, is not quite accurate.

Lastly, I believe Mr. Ripa's interpretation of Raymond Ditmars "benumbment syndrome" is to be challenged. Ditmars, in *Reptiles of the World*, (1910) writes about the shock the snake receives from the overpowering (i.e., restraining) necessary to force-feed a reluctant feeder. The method of collection of large reptiles, especially venomous snakes, during this period (early 1900s) usually consisted of "noosing." Most snakes, when noosed, vigorously writhe or fight the noose, sometimes causing permanent damage to the neck or spine. An animal subjected to this collection method may slowly waste away, refusing food and crawling in an abnormal manner. I believe Ditmars wasn't aware of the method of collection, and that he often received damaged animals, destined to die because of the collection method. Also, during this period, they shipped animals from Central and South America by boat to New York, with little regard as to the temperature, etc. In the mid 1970s, '80s and '90s, I saw a lot of noosed bushmasters that had been imported to the States. They all bear a typical scar a few inches behind the head. They also act in the manner that Ditmars describes. But I believe they act in this manner because of the collection method, not because they have been restrained for insertion of a radio transmitter or for force-feeding. I have done the latter, without any problem or

"benumbment syndrome."

Overall, I found Ripa's article interesting, even his personal experience with the snakebites he has received! I cannot comment though on his biogeography or the theories he has put forward concerning other aspects of these animals. I only have experience with these wonderful animals in a captive situation.

Sincerely,

**Randal Berry, Little Rock Zoo, #1 Jonesboro Drive,
Little Rock, AR 72209.**

Dear Randal:

Please read my article more thoroughly, and many of your questions will be answered for you. If you *had* read my article thoroughly, I think you would not have made so many hasty and unfactual assertions about it.

Having read your letter, I almost wonder if you are talking about my article or someone else's. When you are not absolutely misquoting me, you re-manufacture my statements into axioms, which you then proceed to "challenge" (e.g., I say that "*a* snake would not hide in a white box," which you convert into "he says *no* snake will hide in a white box"). You then make a precarious "point" based on that misunderstanding. No writer likes to be misquoted, and I'm sure Raymond Ditmars, if he were alive today, would not like it either. Your treatment of his writing was not unlike your treatment of mine.

I will begin with the misstatements you have made about my writing, and close with the misstatements you have made about Ditmars'. But first I call to question certain points that you claim a familiarity with, but which are at variance with material I have gathered from you during the four years of our numerous personal communications. You state that "in the mid 1970s, '80s and '90s" you "saw a lot of bushmasters that had been imported to the States." There is nothing strange about this, but it was made very clear to me during my communications with you that you had not kept a live bushmaster prior to 1995. It was during this period that I helped you, both at your house and in long hours over the phone (as did Don Boyer), acclimate the large male specimen you got from Tom Crutchfield—your first bushmaster. So if you "saw a lot of bushmasters during the 1970s, '80s and '90s," you did not see them in your possession. I think it would be more accurate to say that you "saw a lot bushmasters after 1995," while you were working at Tom Crutchfield's. But I doubt if you could say you saw "a lot" of them even there, as he never had "a lot," and you did not work there very long. Really, you should have stated that you have worked with bushmasters only for the past four years or so. Then, to make your own statements more clear to the reader, you ought to be specific and state whether "newly acquired" means "freshly wild caught," or "acquired" from some other source, such as other captive collections. Since the passages (in my paper) which you dispute pertain to "freshly wild caught" snakes, it is particularly relevant that you distinguish between them. You then ought to state the actual number of "freshly wild-caught"

specimens you have acclimated, to distinguish from those that were acclimated by other people prior to your obtaining them. I know of only one case of your acclimating a wild bushmaster, and as I recall, I helped you with the task, meeting you in Florida to help you design and set up your cage for it, followed by long hours giving you advice over the telephone. This specimen was the big male wild-caught *Lachesis muta muta* kindly given to you by Tom Crutchfield. The other, a Choco male (locality Cauca, Colombia), came via Germany, and was already well acclimated and feeding before you received it, having been in captivity several years. All the rest of the “newly acquired” animals you speak of were, to my knowledge, either captive born or long term captives (such as the two females that came from Fred Antonio—again through Tom Crutchfield—and the captive born ones from San Diego Zoo). I do not profess hidden knowledge, but I well researched your collection with you before I invited you to do the personal communication in my paper, as it was all pertinent to my study. Perhaps there are snakes that, for whatever reason of your own, you did not tell me about, but the reader might find it relevant that you base your observations almost entirely on well acclimated captive specimens, and on a total of not more than 6–8 snakes. But this is not what you imply in your letter. Instead you pose a vast hidden experience with numerous bushmasters and, we must assume, freshly wild-caught ones which you have acclimated to captivity.

Now I will get to the part of your letter which directly concerns my paper.

1) There is no statement in my paper about collecting fecal “samples”. There is no mention of collecting samples for examination of parasites. Your remark is inexplicable, and has no bearing on my paper. However, for what it's worth I do agree with you. It is easier to collect poop on paper! Is this a point of contention?

2) You contest my use of “scent clues” to acclimate “newly acquired” (as you put it) bushmasters as though I have said it were the “only way” one could do it. I simply state that I had better luck using that method than not. The sentence reads (p. 62): “In acclimating wild-caught bushmasters I have found it effective to introduce the new captive into an enclosure that has been previously inhabited by other acclimated bushmasters, that is, one that retains the substrate containing their chemical markers.” You re-manufacture my statement into an axiom, so as to make it into a point of contention; i.e., so that you can proudly say, “that is not true! I have done it! It was not necessary!”

3) I emphatically *do not* state that bushmasters will not go into new hide boxes. I *do* state that I found it easier to use old hide-sites that contained old chemical clues, to encourage wild-caught examples to begin concealing themselves, as all “normal” bushmasters, given the choice, will begin episodically hiding (the “shocked” or “traumatized” bushmaster often will not). On page 62, paragraph 2, I simply state that I noted a higher frequency of recovery of hide-sites (when the hide-site was moved to a new location) if the hide-site had been previously used by the same or another bushmaster. This indicated that bushmasters located their hide-sites by detecting chemical

clues. But here again you have re-manufactured my statement into an axiom, just to make a point of contention: You state, “I have found this not to matter. . . . They would go into a hide box that was new.”

4) I do not state that bushmasters will coil *only* in the same place where previous animals have coiled. This is your invention. I do state (p. 62, paragraph 4), “Note the frequency with which bushmasters return to the same place to coil after the nightly exploratory crawl—the site where it most detects its own scent.” Another of your misstatements.

5) You state that a hide box is critical in maintaining captive born bushmasters. I disagree. None of the over 100 bushmasters I have hatched and raised here over the years are even provided hide-boxes in their cages for their first two years of life (I haven't space), nor do I recommend the purchasers of my snakes using them since it encourages the snakes to become “hidiers” and consequently the owner would seldom get to see his captive. Keeping the snakes in a dimly-lit room is sufficient if the snake is captive hatched.

6) As in point 5, obviously, a snake that does not need to hide anyway will adjust to any hide-site, whether it is colored white or black, light or dark inside. But with wild-caught snakes, I've had better luck with dark hide-sites.

7) I emphatically *do* state that bushmasters almost exclusively strike-hold when possible (when the strike is predatory and the prey is small enough and has been seized “correctly”). I *do not* state (as you imply) that they will not strike-release. I state that the strike-release occurs, as it were, by “default”--- from failure to maintain strike-hold. As it happens this occurs quite frequently, as I record on pages 78-79, Table 4, under the heading, “Use of strike-hold to capture prey scored against strike-release (failure to maintain strike-hold).” I provide a rate of “50% strike-release (50% strike-hold) for *L. muta* with rodents of 250 g” and “30% strike release (70% strike-hold)” for the two Central American species. Afterwards, the dead prey may or may not be chemo-trailed and eaten (see “Prey recovery and ingestion after strike-release of prey in an area 15 m square,” also Table 4). But you have quite ignored these passages, and the huge footnotes that accompany them, in order to have license for your misstatements.

8) As though refuting me, you then proceed to state that you can “place a rodent at the entrance of their [the bushmaster's] hide-box and the bushmaster will crawl slowly up and begin eating it.” You must be talking about *dead* rodents here, although you do not say so—for you then proceed to state that “they will *also* accept cold dead prey.” My study is about the natural predatory habits of bushmasters, not their aberrance in captivity. Any snake can be trained to eat dead prey (or “cold dead prey”). But if you can train a bushmaster to *strike-hold* cold dead prey (as opposed to warm dead prey) then, aberrance, or not, I would like to see it. But you do not make the error of stating this, fortunately, for it would not be true. Bushmasters strike-hold *warm* prey, just as they hunt, in the wild, “warm” endothermic prey. Since feeding sequences usually begin with a strike, I let my statement stand that a feeding episode rarely occurs in the absence of an initial strike-

sequence. It may be possible to “teach” the occasional example to do otherwise, but it would be very unusual in the natural state. I think we can agree that bushmasters are not carrion feeders, but predators. As a keeper of snakes yourself, you mistake my article for a husbandry article, which it is not.

9) If you have force-fed your bushmasters and they did not get injured, that is very good. I am impressed at your gentleness, and at the cooperation of the snakes. However, please state how often you have done this and *why*. Again, I know of only one wild bushmaster that you have acclimated, and I helped you with that one over the phone. It did not need to be force-fed as it turned out, but ate on its own. Or is this something you do habitually to your already acclimated snakes? One can only wonder why. My experience parallels Dr. Ditmars' in that the bushmaster often enters a state of shock after it has been restrained. This doesn't mean it *always* has to — but if you prefer to re-manufacture all human thought into terms of axioms. . . .

10) Now I will describe your misstatements about Dr. Ditmars. You are absolutely wrong in your belief that Ditmars “was not aware of the method of collection of the snakes he received,” and that he did not know they had been noosed. You are even more presumptuous to suggest that after an interval of almost a hundred years, *you have somehow come by an awareness Ditmars didn't have!* It is indeed mysterious knowledge, since where else would you have acquired your information on early twentieth century snake collection but from a book by Ditmars, or by one of his contemporaries (all of which books Ditmars would also have read). But if you must misquote me, please do not misquote my boyhood idol. For Raymond Ditmars was not asleep in his office all those years, and I can assure you, he was *absolutely aware* of native people's practice of “noosing” the snakes they collected for him. In *The Making of a Scientist* (MacMillan, 1937, p. 229), he writes:

I have long been convinced that the reason why captive bushmasters fail to eat or take the slightest interest in food is the shock of capture. . . . The bushmaster is a particularly temperamental snake. . . . If restrained it fights desperately and once captured will sulk in a corner of the cage for days, never moving from the spot, not even to approach a dish to drink. . . . As it is the practice in the tropics in catching a bushmaster to use a snare on a long pole, it is safe to say that about every other bushmaster is choked to death, and that the survivors, since the tension of the noose is not released until they have been pushed into a deep bag, have had an experience they will never forget. Indeed, they are often strained and permanently injured in capture, since their vertebral bones are more delicate than those of other snakes.

In *Thrills of a Naturalist's Quest* (MacMillan, 1932, p. 138) he even describes teaching native people how to make such nooses. He calls them “snaring staffs” and he distributes these to native people in Honduras so that they can catch fer-de-lance (*Bothrops asper*; then *Bothrops atrox*) for him. He writes:

These staffs were about four and a half feet long. There was a broad loop of leather at the end, this carried through a metal guide. Attached to the loop was a leather thong, running through eyelets along the staff. Operation of the device was very simple. When a snake was seen the loop was to be slipped over its head and the long thong pulled tight.

You much underestimate Ditmars' intelligence by implying that he was not aware of the means and conditions (“temperature”) by which he received his imported live snakes (i.e., by boat). He makes numerous references to going down to the docks to collect his shipments. In his famous “Episode of the Bushmaster” (ibid.), he writes with great excitement on receiving news that the cargo steamer bringing his snakes had just arrived from Trinidad. This occurred circa 1900, the ship is the *Irawaddy*, and he has just received a cable from the shipper that his snakes are on board. . . .

“Mailed per Irawaddy.” That meant the snakes were in port! . . . My chief anxiety . . . [on opening the crate] was the thought that I might find the odor of dead specimens. There is always a hazard in distance shipments of snakes. They can go weeks without food, but some suffer from thirst. . . . Shipments of snakes often go thousands of miles without attention of any kind. . . . The greatest hazard to such a shipment is exposure to *low temperature*.

In fact, Ditmars makes references to overseas transport of snakes in many of his books, and in several narratives he describes making such journeys himself accompanying his live cargo.

Poor Dr. Ditmars. Misrepresented by the new cognoscenti, portrayed as a lamebrain because he lacked a subscription to *Reptiles* magazine, ignored by modern herpetologists who don't take him seriously anymore because he didn't spice his work with miles of neat statistical graphs and curves (as if animal behavior was a riddle to be solved mathematically), and because he didn't practice every conceit possible to convince himself and the world that herpetology is an exact science worthy of quantum physics! Ditmars, poor man, was a creature of the last century, when it was still possible to talk of the color red without dragging in a MANOVA to prove it. But while it may be popular to disparage Ditmars in some circles, do you, Randal, think that, at a distance of ten decades, you know more about what was going on in the early twentieth century than he did? Do you actually think that he was such a fool as to *not know* his snakes were noosed, or that they came by ship, of which fact you have by some magic method become informed?

Wild bushmasters that have been restrained by noose or by hand do not usually adapt well to captivity, but you do not satisfy me that you have had experience with acclimating such “noosed” snakes. At least it is at variance with all the personal communications you have given me up until now. However, you do make one good point, even though you misquote me in order to do it: Probably one *could* force-feed the rare example without hurting it badly, especially a young one. As Burchfield (1975, International Zoo Yearbook 15:175-177) writes: “Much of the present degree of success [in captivity] with the species can be attributed to the acquisition of younger, uninjured specimens [i.e., that have escaped noosing].” And, “Force-feeding presented no problem other than the ever-present possibility of mechanical injury.” He then goes on to note, however, that he was not able to keep the force-fed specimen alive for more than 1½ years. He also notes that even to manually remove a dried skin shed is “traumatic” to these snakes.

Dr. Fatima at the Instituto Butantan in São Paulo, Brazil, has a bushmaster that she keeps alive entirely by force-feeding it, and has done so for several years. However, she knows better than to restrain it. She puts it to sleep first, instead. This is the method I customarily use to force-feed wild-caught snakes that will not eat on their own—but I use it only as a last-ditch effort. I recommend the use of isoflurane inhalant for this job, having had success with it not hurting the snakes.

I do not doubt that radiotelemetry could be done in this way also without harming the snake. However, if the transmitter is pushed down the snake's throat, it will be excreted within about 14 days, which doesn't give the radiotracker much time for observation.

Surgical implantation gives the radiotracker more time; however there is the trade-off in the harm the operation does to the snake. Can it be made workable? A young 90 cm specimen in Greene and Santana (1983, Amer. Zool. 23:897) actually fed while in the wild—and that is certainly testimony to something. (However, the ultimate fate of that snake remains to be seen; there is a dead specimen fitting its description in the Zoological Museum of the School of Biology at the University of Costa Rica [i.e., 90 cm TL, with an unidentified 40% snake-body-weight mass lodged in the stomach]. It was taken from the same locality as the radiotelemetry work was done, if I am not mistaken [I stand corrected if I am], and during the same years those studies took place. I do not recall the name of the collector of the snake, but is it in the catalog. This snake is remarkable for the enormous swelling in its belly, suggesting an oversized meal was eaten—a contingency with an often fatal result, as I have described on page 56.)

What do I think of surgical implantation? While it is possible that such “altered” snakes might behave normally enough to make some good observations (and Greene and Santana [ibid.] made the landmark effort of testing this), I believe bushmasters do not respond well to this sort of treatment, and that many of

them eventually succumb. They might also require a period of recuperation from the surgery first before useful data could be gathered. The risk of the snake developing an infection in the bacteria-filled tropical environment is great—much greater than with a dry habitat or desert snake. Even to perform a much milder operation on a well acclimated snake in captivity (i.e., to remove debris from an infected heat-pit) results in a starkly modified behavior for about six weeks. With infection this behavior would be further modified. From this, and the stress of the operation, I strongly suspect that surgical implantation of transmitters has probably killed many more bushmasters than lived through the experiment, and that what one is really observing is not the activities of a normal healthy snake but a snake convalescing after the shock of its experience. You would convalesce too if you had undergone a difficult operation to implant an outsized mechanical object in your side. You might move just a bit slower than normally, and keep near the house. You might lose your appetite.

The fact that Harry Greene has abandoned these projects (with bushmasters) in favor of work with dry habitat snakes (i.e., rattlesnakes) suggests to me that radiotelemetry isn't all that workable with *Lachesis* species. I would certainly like to hear more about Dr. Greene's remarkable experiences with wild bushmasters, however. He is, after all, the pioneer of this sort of work. And while it is of no relevance here, may I throw in while I have space in the forum that Harry Greene is one of the greatest living writers on snakes today. If anyone is the “modern Ditmars,” it is he. I have very few idols in my adult life, but Harry Greene is one of them. I have learned more from reading Harry Greene's papers than from practically anybody else. My criticism of radiotelemetry in bushmasters is not a criticism of Harry Greene's work. It is a criticism of the limitations of radiotelemetry.

Thank you for your interest in my paper.

Dean Ripa, 4608 Cedar Avenue, Wilmington NC 28403.

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For sale: Australian herp books. *Australia's Reptiles—A Photographic Reference to the Terrestrial Reptiles of Australia* by Stephen Wilson and David Knowles, 1988, 447 pp., 847 color photos of reptiles plus 23 color photos of habitats—large volume with range maps, species descriptions, habitat and microhabitat, natural history info, hardbound, dust jacket, \$100; *Take Care! Poisonous Australian Animals* by Dr. Struan Sutherland, 1983, 48 pp, many color photo—info on poisonous snakes, fish, and invertebrates, snakebite and its treatment, children's book, plastic covers, \$15 All books in excellent condition, prices postpaid. William R. Turner, 7395 S. Downing Circle W., Littleton CO 80122, (303) 795-5128.

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For sale: 7' male Surinam redbelted boa constrictor. The red coloration on this beautiful animal extends fully two feet along the body from the base of the tail, c.b., very docile, \$300. Ralph, (847) 729-2234.

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For sale: yellow anacondas, c.b. 6/99 from 10' docile female, bright yellow with solid black spots, great eaters, \$100 each; male jungle carpet python, stunning 2-year-old, "Lazik" bloodline, \$250; black & white banded Cal. kings, \$25; 50/50 high white Cal. kings, \$50. Mark Petros, Strictly Serpents, (847) 854-3259 home, (847) 854-2992 work.

Advertisements (cont'd)

For sale: Send SASE to CRC, P.O. Box 0731, Las Vegas NV 89125-0731 for brochures and list of species available. Limited bookings available for guided tours of herpetological collection sites in Nevada. Call/fax (702) 450-0065. URL <<http://www.herp.com/crc/>> E-mail <crsafetie@aol.com>.

Tours: Adventure tours to Madagascar! Join **Bill Love** seeing and photographing fauna and flora, heavily herp-biased, across the world's least known mini-continent. Maximum fun & photo ops assured on every trip. Contact him at: BLUE CHAMELEON VENTURES, P.O. Box 643, Alva FL 33920. TEL: (941) 728-2390, FAX: (941) 728-3276, E-MAIL: <blove@cyberstreet.com>.

Tours: **Road-riding in Costa Rica!** Treat yourself to the trip of a lifetime! Learn about tropical herps, find them, photograph them, see where they live. **Greentracks, Inc.**, offers the best herpetological tours led by internationally acclaimed herpetologists and herpetoculturists. See the Amazon, visit cloud forests, experience the world's greatest rainforest, super sunsets and good company. Call (800) 9-MONKEY.

Wanted: big-headed turtles; mata mata turtles; Mexican giant mud turtles (*Staurotypus triporcatus*); exceptionally large common snappers (45 lbs. & up); large alligator snappers (over 90 lbs.); spectacled caiman from Trinidad, Tobago and Surinam; dwarf caiman; smooth-fronted caiman; albino turtles (except red-eared sliders). Walt Loose, (610) 926-6028, 9:00 A.M. – 1:00 P.M. or after 11:30 P.M. Eastern Time.

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail <MADadder0@aol.com>.

Unofficial Minutes of the CHS Board Meeting, August 13, 1999

The meeting was called to order at 7:39 P.M. Board members Gino Martinez, Jennie Picciola and Don Wheeler were absent.

Officers' and Committee Reports

The minutes of the July Board of Directors meeting were read and accepted.

The Treasurer's report was accepted.

Vice-president Mike Dloogatch reported that future speakers at the monthly meetings will include Bob Ashley, Al Baldogo, Jeff Ettling and Robert George Sprackland, but the August speaker is still uncertain.

Shows: Jenny Vollman reported that a person representing a client called her and requested 30–40 species of herps for a show in Champaign in September. The person did not want the CHS to participate; only to serve as a liason for acquiring these animals. It was decided that the CHS is not a brokerage business and will not participate in this. Steve Spitzer will display herps at the Evanston Community Days, Sunday, August 29, from noon until five.

Raffle: Marcia Rybak will promote raffle items on the CHS website.

Website: Marcia Rybak would like to put a sample CHS *Bulletin* on the website to encourage on-line memberships. Jack Schoenfelder suggested utilizing the website to raise funds and is open to suggestions.

Adoptions: Jack Schoenfelder brought up the problem with herps and Animal Control (Lake Station, Indiana, in particular). This is a difficult problem which needs to be addressed in the interest of saving more herps and Bob Bavirsha agreed to become more involved.

ReptileFest: Sponsorships for the 'Fest were discussed and Jack Schoenfelder would like to see a signed contract as soon as possible in order to promote this show. Discounts for school groups and others were brought up.

Old Business

Jan Spitzer will now be taking care of the phone messages from our answering machine.

Jack Schoenfelder and Mike Dloogatch will meet with Colin Silvester, CEO of the Chicago Academy of Sciences, for the purpose of re-establishing the link between the CHS and the CAS. This will take place in August.

Formation of a committee for the 2001 Midwest Herpetological Symposium was discussed.

New Business

Corresponding Secretary Lori King-Nava reported that at the International Herpetological Symposium, the plight of the Utila iguana, *Ctenosaura bakeri*, was discussed by Gunther Kohler of Frankfurt, Germany. It seems that this iguana, native to Utila Island, Honduras, has become endangered due to illegal hunting and destruction of the mangrove forests. Lori urged everyone to send letters protesting the cutting of the mangroves. The board authorized Lori to send a letter on behalf of the CHS.

Jack Schoenfelder stressed that the general meetings need to begin promptly at 7:30 and that tables would need to be set up earlier. He also suggested that featuring live animals at the meetings could possibly improve attendance. Jack also talked about providing the members with Christmas shopping at the November meeting.

The status of out-of-state board members was brought up but not discussed.

Round Table

Greg Brim stated that the CHS needs to exploit its website potential.

The meeting adjourned at 9:45 P.M.

Respectfully submitted by Recording Secretary Karen Bielski

News and Announcements

E2K (Election 2000)

As the new millennium draws near, we need to continue the CHS tradition as the premiere organization of its kind. If we are to do this, we will need your help. You may have heard already that we are likely to move our monthly meetings to the new Peggy Notebaert Nature Museum of the Chicago Academy of Sciences. This is the perfect time and place to express those ideas and concepts that have been burning in the back of your mind.

You can help your fellow amphibian and reptile enthusiasts by attending the monthly general meetings and board meetings or, even better, by taking an active role as an officer or member-at-large of the board. At the November 24 meeting there will be a general election for the officers and board members of our organization. We are looking for people who are willing to serve in the following positions.

President:

- Represents the CHS to the public
- Chairs the monthly meetings
- Oversees all committees and CHS functions

Vice-president:

- Assists the president
- Schedules guest speakers for the monthly meetings
- Fulfills the president's duties in the president's absence

Treasurer:

- Handles all financial transactions and maintains accurate records (basic bookkeeping)

Corresponding Secretary:

- Responsible for all official correspondence and mailings

Membership Secretary:

- Maintains up-to-date membership information
- Sends renewal notices, receives dues and issues membership cards

Publications Secretary:

- Responsible for all CHS publications (may act as editor or appoint editors)

Recording Secretary:

- Takes minutes at all official meetings and retains copies of the minutes and other records

Sergeant-at-arms:

- Maintains order at meetings (gets people to sit down so the meeting can start)

Members-at-large:

- Assist officers and committee chairs with their jobs

If you want this organization to “be all it can be,” submit your name to any member of the nominating committee:

<u>Name</u>	<u>Phone</u>	<u>E-Mail</u>
Karen Bielski	(773) 283-3661	
Brian Jones	(708) 418-8193	chuckwala2@aol.com
Joan Moore	(773) 528-4631	Joan.Moore@worldnet.att.net
Don Wheeler	(847) 945-2576	
Bob Bavirsha	(312) 316-0422	Bobsbeasts@aol.com

The October *Bulletin* will include the nominating committee's slate of candidates, which will serve as an absentee ballot in the event that you are unable to attend the November 24 meeting. Look in the October *Bulletin* to see what special event the nominating committee has planned for the election meeting.

Make your vote count; be there at the November 24 meeting.

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, September 29, at the Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, in Chicago. The speaker will be **Bob Ashley**, of Lansing, Michigan, a private herpetoculturist and purveyor of herp-related books and T-shirts. Bob's talk will be on "Herping Adventures in Australia."

Jeff Ettling, Curator of Reptiles at the St. Louis Zoo, will speak at the October 27 meeting. Jeff will speak on the Jamaican boa conservation project with which he has been involved—a project that has been partially funded by a grant from the CHS.

We are required to use the entrance on the west side of the museum. **We are allowed to use the free parking lot to the west of the museum. Entrance to this lot is from McFetridge Drive, the wide street just to the south, between the museum and Soldier Field.** Public transportation is an option: the Roosevelt Road (12th Street) bus goes directly to the museum, thus providing a connection with the el and subway. This bus service runs until 11 P.M.

The Chicago Turtle Club

The Chicago Turtle Club will meet on Sunday, September 26, 1:00 – 3:30/4:00 P.M., at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Meetings are informal. Questions, children and animals are welcome. Parking is free and there is no admission. For more information call Lisa Koester, (773) 508-0034 or visit the CTC web site: <<http://www.geocities.com/~chicagoturtle>>.

DONATIONS TO THE JULY 28 RAFFLE

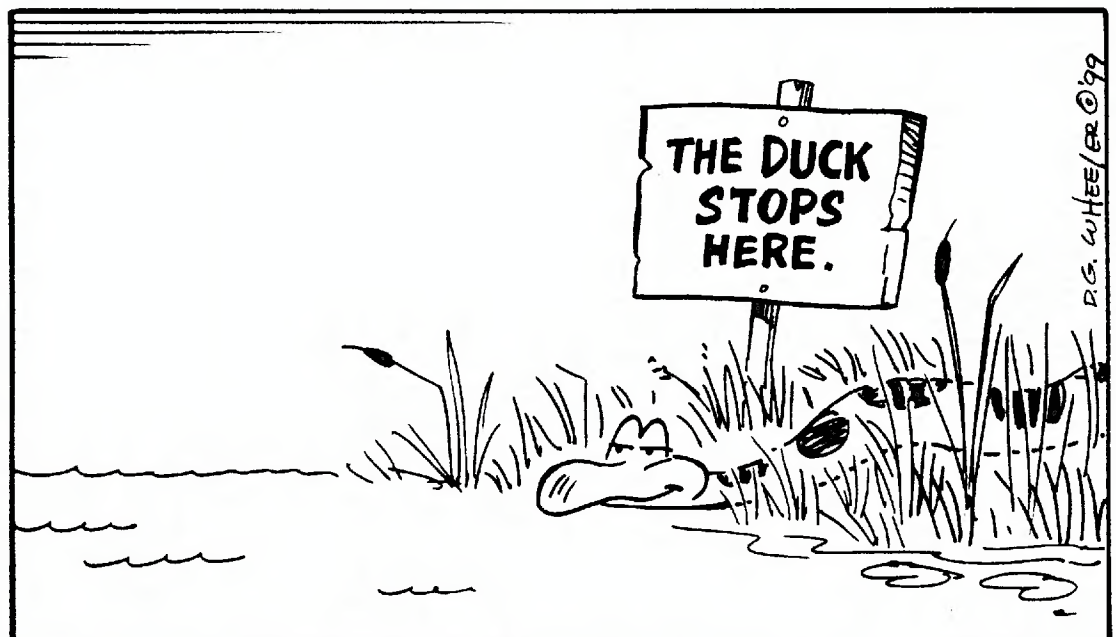
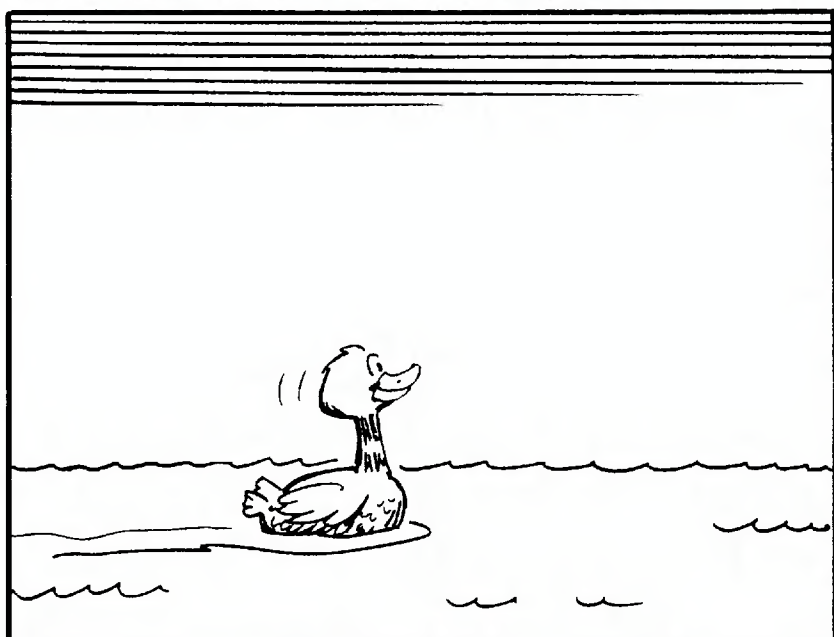
The following is a listing of those businesses and individuals who generously donated items for our monthly raffle at the July 28 meeting. The donated items are shown in parentheses.

Fluker Farms (Cricket Quencher); Reptile Emporium (InsectNside candy/Larvets Worm Snax); Pretty Pets (tortoise/aquatic turtle food); Zoo Med (T-shirt/bearded dragon food); Sunshine Mealworms (cricket gift certificate); RepCal (bearded dragon food); Top Hat Cricket Farm (cricket watering station); Super Pet (floating island/Little Critter Kit); Ghann's Cricket Farm (cricket gift certificate); Super Pet (Hanging Gardens cage decor/ceramic dish); Rainbow Mealworms (mealworm gift certificate); Guenter Enderle Enterprises/Nekton (iguana vitamin supplement); Energy Savers Unlimited (Bright Light day bulb); American Federation of Herpetoculturists (*Vivarium* subscription); E.J. Lawn Care, New Buffalo, Michigan (55-gallon aquarium)

MOVING??

Please let us know in plenty of time of any change in your mailing address. The *Bulletin of the Chicago Herpetological Society* is sent to our U.S. members by bulk-rate third class mail. This means that the U.S. Post Office will not forward your *Bulletin* with the rest of your mail. This is so even if you make a special request that your magazines be forwarded (such a request only applies to second class mail).

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